

In FIG. 8, the alternative embodiment of the microstructure **1** differs from the embodiments represented in FIGS. 3 and 6 by stacking of an additional layer **13** of silicon formed on the second initial layer **10** of $\text{Si}_{1-X2}\text{Ge}_{X2}$ of the microstructure **1**. The additional silicon layer **13** is in particular deposited before any thermal oxidation treatment, in the case where the microstructure **1** is used for a germanium condensation treatment.

The additional silicon layer **13**, with a thickness ranging for example from a few angstroms to a few nanometers, is preferably amorphous or polycrystalline, and serves the purpose in particular of forming a thin layer of SiO_2 on the top of the microstructure **1** preventing consumption of germanium during the thermal oxidation step of the germanium condensation process.

Whatever the embodiment of the microstructure **1** described above, such a microstructure **1** in particular enables a GOI or SGOI substrate **4** to be fabricated presenting optimum characteristics in terms of germanium concentration and enrichment, in terms of layer thickness and in terms of mechanical properties.

The presence of a second initial layer **10** in the initial microstructure **1**, in particular when the microstructure **1** is used to form a substrate **4** by germanium condensation, enables the germanium enrichment to be speeded up and a substrate **4** to be obtained with better qualities. The second initial layer **10** also enables any additional thickening step of the substrate **4** to be avoided. Furthermore, the intermediate layer **11** in particular enables crystallization of the layer **10** to be prevented, which layer remains amorphous or polycrystalline during formation of the substrate **4**.

Furthermore, the first initial layer **3**, which is thin and pseudomorphous, in particular enables the presence of dislocations in the stack of layers of such a microstructure **1** to be prevented.

The invention is not limited to the different embodiments described above. The values of the germanium concentration and of the layer thicknesses are not restrictive and depend on the required initial and final characteristics of the microstructure **1** and of the substrate **4**.

The invention claimed is:

1. Microstructure designed for formation of a silicon and germanium on insulator substrate of $\text{Si}_{1-Xf}\text{Ge}_{Xf}$ type, with Xf comprised between a first value that is not zero and 1, and formed by stacking of
 - a silicon on insulator substrate,
 - a first initial layer of silicon and germanium alloy of $\text{Si}_{1-X1}\text{Ge}_{X1}$ type, with X1 strictly comprised between 0 and Xf,
 - an intermediate layer that is able to remain amorphous during formation of the silicon and germanium on insulator substrate, and
 - a second initial layer of silicon and germanium alloy of $\text{Si}_{1-X2}\text{Ge}_{X2}$ type, with X2 comprised between a first value that is not zero and 1.
2. Microstructure according to claim 1, wherein the intermediate layer is made of silicon oxide.
3. Microstructure according to claim 1, wherein the intermediate layer is made of silicon nitride.
4. Microstructure according to claim 1, wherein the thickness of the intermediate layer ranges from a few angstroms to a few nanometers.
5. Microstructure according to claim 1, wherein the first initial layer of $\text{Si}_{1-X1}\text{Ge}_{X1}$ silicon and germanium alloy is pseudomorphous.
6. Microstructure according to claim 1, wherein the second initial layer of $\text{Si}_{1-X2}\text{Ge}_{X2}$ silicon and germanium alloy is amorphous.
7. Microstructure according to claim 1, wherein the second initial layer of $\text{Si}_{1-X2}\text{Ge}_{X2}$ silicon and germanium alloy is polycrystalline.
8. Microstructure according to claim 1, comprising an additional silicon layer deposited on the second initial layer of $\text{Si}_{1-X2}\text{Ge}_{X2}$ silicon and germanium alloy.
9. A method for fabrication of a thick silicon and germanium on insulator substrate of $\text{Si}_{1-Xf}\text{Ge}_{Xf}$ type comprising germanium condensation on a microstructure according to claim 1.

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